Small Community Toolbox

Technical Assistance for Economically Disadvantaged Water and Wastewater Providers

North Coast Resource Partnership

California Department of Water Resources

February 2015

NORTH COAST RESOURCE PARTNERSHIP

COUNTY OF HUMBOLDT
The Home of the Redwoods

DEPARTMENT OF WATER RESOURCES
STATE OF CALIFORNIA

GHD

North Coast Resource Partnership
California Department of Water Resources

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Foreword

This Small Community Toolbox Report was designed to be used as an interactive electronic document. Printed, hard copies will not contain all possible resources and information. However, key information is included in the printed, hard copies. Web addresses for most external links are provided in the form of footnotes, but can be long and are subject to change. Because of this, we recommend using the electronic versions. Electronic copies of this Toolbox Report can be obtained from the North Coast Resource Partnership (NCRP) website at www.northcoastresourcepartnership.org or by reaching NCRP staff, whose contacts are located in Appendix 1.1.

In order to most effectively use this Toolbox Report, users may need to install/upgrade to the most recent version of Adobe Reader. It is a free software program and can be downloaded directly from the developer at http://get.adobe.com/reader/. This Toolbox Report contains two types of links. One is internal and thus, is self-contained within this document. The other type of link is to external, online resources such as government regulations and therefore, requires an internet connection to be utilized. Finally, some tools in this Toolbox Report include resources in the form of spreadsheets. These were developed using Microsoft Excel 2010; however, they may be compatible with other spreadsheet software programs.

This Toolbox provides information developed by GHD as well as references to information developed by other entities. The information developed by other entities is provided as another reference that small communities may find useful. GHD is not responsible for the information available from other entities and it is necessary for the user to verify that the information is appropriate for the intended use. Small communities are encouraged to retain professionals to assist in the evaluation of use of this Toolbox as well as the additional reference material available from other entities.

Document Instructions

The Table of Contents is designed such that clicking on any of the titles will direct you to that part of the document. The tables work in a similar fashion; clicking on the section titles will take you to their respected locations. Any word or phrase in the document that is blue and underlined is a link either to another place in the document, an external pdf reference, or an external website. An example of this is the phrase “Table of Contents” above, which will take you directly to that section of this document. In addition to these links, most logos are links to the company/agency websites.

Hint: Adobe Reader is designed so that anytime your cursor turns from an arrow to a pointing hand, there is a link at that location. Therefore, if you ever wonder what is and what isn’t a link, just look for the hand. A “W” appears by the hand for the web based links. These cannot be opened without internet connection.

Quick Directory

It is recommended that the “How to Use This Toolbox” is read to get a further understanding of how this document works. However, here are a couple locations in the document you may choose to jump directly to.

- Toolbox Elements Table
    - This table provides quick access to the sections of the toolbox readers may be most interested in.
- Frequently Asked Questions
    - The FAQ’s have been developed based on the comments received as part of the NCRP Water and Wastewater Service Provider Outreach Program Systems Needs Survey and refer to appropriate sections of the toolbox to answer questions.

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Abbreviation Guide

CDBG – Community Development Block Grant

CDP – Census Designated Place

CDPH – California Department of Public Health

CEQA – California Environmental Quality Act

CRF – Cost Recovery Factor

CRWA – California Rural Water Association

CWEA – California Water Environment Association

DAC – Disadvantaged Community**

DWR – Department of Water Resources

EPA – Environmental Protection Agency

FEMA – Federal Emergency Management Agency

GIS – Geographic Information System

IHS – Indian Health Services

MHI – Median Household Income

NCRP – North Coast Resource Partnership

NEPA – National Environmental Policy Act

NRWA – National Rural Water Association

PER – Preliminary Engineering Report

RCAC – Rural Community Assistance Corporation

SRF – State Revolving Fund

SWRCB – State Water Resources Control Board

USDA – United States Department of Agriculture

** This document will be using the same definition for “Disadvantaged Community” that many of the state and federal funding agencies use; being, a community with a median household income (MHI) less than 80 percent of the statewide MHI.

How to Use This Toolbox

Introduction

Each small community is unique and varies by size, services provided, condition of infrastructure, growth potential, regulatory compliance, financial condition, staffing, and other factors. Small communities that provide water and/or wastewater services invariably have needs to maintain, replace, or upgrade their infrastructure to serve the public.

This Small Community Toolbox provides resources and references that allow small communities to approach the management of local water and wastewater infrastructure in a systematic fashion.

The Toolbox is not a substitute for professional assistance with operations, management, engineering and legal issues. Rather it is intended to help small utilities develop a "first order" understanding of what their options are, how they should begin to budget, and how to get help.

Managing a water and wastewater utility can be approached using the concept of the Utility Management Cycle illustrated in Figure 1 below.

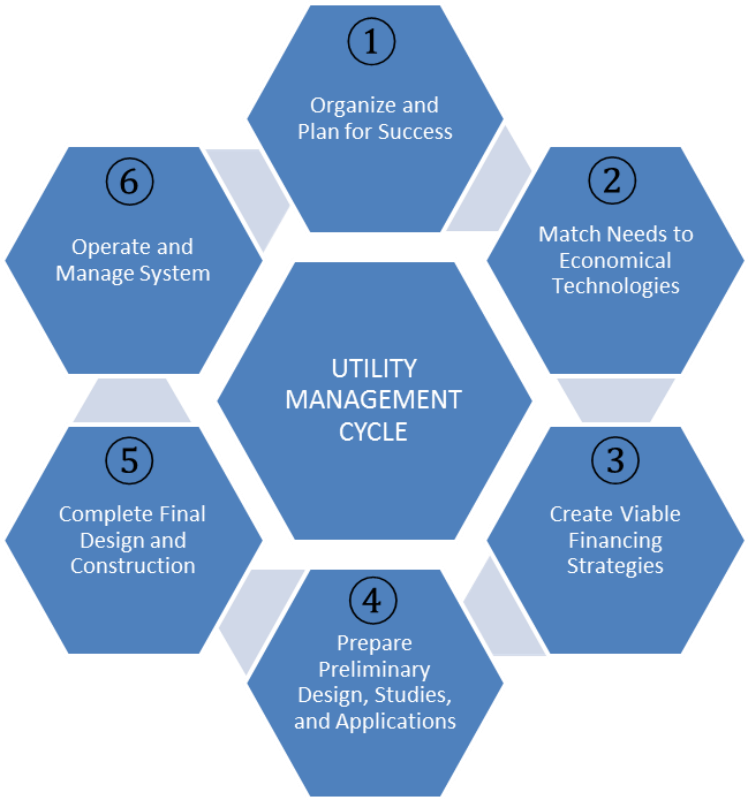


Figure 1 The Utility Management Cycle

The six major elements of the Utility Management Cycle are based on the typical approach used by well-run entities implementing significant infrastructure projects. Although this is shown as a generalized cycle, it is adaptable to specific situations. Certain elements may be emphasized more than others; progress may not be linear and looping back or reevaluation of some phases may be warranted.

The Three Essentials of Project Implementation

Implementing any infrastructure project requires the three essentials shown in Figure 2.

Figure 2 The Three Essentials of Project Implementation

When there is an appropriate technological solution to a problem, a community has the opportunity to solve the problem. When a community has then coupled the technological solutions with a viable financing strategy, there is the capacity to solve the problem. Progressing further and actually implementing a project and solving a problem requires an organization with the capabilities to administer the project on behalf of the rate payers. Also, the governing body must have the will to act and make the decisions to authorize their staff, consultants, government agencies, lenders, and others to implement the essential elements of the project. These three essentials are embedded in the Utility Management Cycle and it is what all successful agencies capitalize upon.

The Small Community Toolbox recognizes the importance of these essentials and provides resources for each one at the appropriate phase of the Utility Management Cycle.

The Toolbox Elements and How to Access Them

Each Utility Management Cycle Element has one or more tools that have been developed to assist small communities navigate a project through the entire cycle from concept to construction and operation. A summary of the tools and how they can be used is presented in Table 1 on the following page. A Frequently Asked Questions reference follows Table 1.

The tools are accessed through the chapters of this report. The chapter numbers correspond to the numbers of the Utility Management Cycle Elements. It is not necessary for an agency or tribe to work through this report and the tools from beginning to end. Rather, it is more effective for an agency to assess its needs as they relate to the Utility Management Cycle and then focus on the toolbox elements that are of most use. Each of the elements is discussed in further detail in subsequent sections of this report.

Table 1 Toolbox Elements as They Relate to the Utility Management Cycle

Utility Management Cycle Element	Toolbox Element	What it is and How it can be Used
Utility Management Cycle Element 1: ***Organize and Plan for Success***	**1.1:** Community Networking Directory:	A contacts list of water and wastewater providers who can be called upon.
	1.2: Governance Summaries:	An overview of options, benefits, and steps required to form various types of service entities
	1.3: GIS Maps:	Census, legislative, and other public data to help agencies access information needed for applications.
Utility Management Cycle Element 2: ***Match Needs to Economical Technologies***	**2.1:** Technology Overviews:	Overviews of common issues, technologies, and evaluation factors to help select alternatives
	2.2: General Cost Estimating Strategies:	Cost estimating charts to help develop order of magnitude estimates for various types and sizes of infrastructure to begin scoping overall funding strategies
Utility Management Cycle Element 3: ***Create Viable Financing Strategies***	**3.1:** Funding Program Summaries:	A one-stop information shop about funding programs suited to small community infrastructure projects
	3.2: Capital Recovery Tables:	Lookup tables to translate the portion of total project costs not paid by grant into annual debt service requirements met through a revenue mechanism
	3.3: Capital Improvement Financing Summaries:	Summary of strategy options for generating revenue to pay the annual debt service associated with capital improvement
	3.4: Cash Flow Considerations:	Assists entities in understanding the funds needed to move a project through planning, design, and construction
Utility Management Cycle Element 4: ***Prepare Preliminary Design, Studies, and Applications***	**4.1:** Consolidated Preliminary Engineering Report (PER) Template:	Consolidated report outline, with model tables that will meet the needs of commonly used funding programs
	4.2: CEQA/NEPA Exemptions and Checklists:	Summary of CEQA/NEPA exemptions and checklists to aid in meeting State and Federal environmental requirements and funding program requirements
	4.3: Common Permit Triggers:	Summary of typical permits and what project components trigger them
Utility Management Cycle Element 5: ***Complete Final Design and Construction***	**5.1:** Guidance for Hiring Professionals:	As a project moves from initial planning towards implementation, detailed, community-specific designs are required and communities will need to retain professional support
	5.2: Public Bidding Process Overview:	Understanding how the public bidding process works, how to set up a successful project bid, and how the low bid contractor is selected
Utility Management Cycle Element 6: ***Operate and Manage System***	**6.1:** Technical, Managerial, and Financial (TMF) Resources:	Tools to help agencies be organized and managed to improve overall operations and funding competitiveness
	6.2: Regulatory Resources:	Sources to provide information to the utility operator on various federal and state regulations
	6.3: Rate Setting Guidance:	Linking the costs of projects to the need for rate increases and methods to set and change rates
	6.4: Capital Improvement Planning Resources:	Part of the on-going Utility Management Cycle of planning for future system improvements

Frequently Asked Questions

Our system is governed by tribal or some other form of service entity that is unique or not addressed in Element 1.2; is this Toolbox useful for us?

Absolutely! Although we do not directly address every governance structure and how they pertain to each element of our Toolbox, much of the information is pertinent to all. Tribal organizations can even find specific funding assistance in Toolbox Element 3.1. Tribal Assistance Agencies are included in Toolbox Element 1.1.

We are concerned with the idea of planning a large project on our own. Where can we get help?

Many times the best resource is someone who has already been through the process. Thus information that can be obtained from other agencies could be very helpful. Toolbox Element 1.1 and the Community Systems/Networking Map are designed to aid you in connecting with surrounding agencies and encourage collaboration. Another, often necessary, resource is hiring a consultant to aid you in the process. Toolbox Element 1.1 also includes contact information for several non-profit assistance agencies that may be able to provide help. Toolbox Element 5.1 provides assistance in selecting a professional that will fit well with your agency or tribe and project.

We need help funding upgrades to our old and/or deteriorating infrastructure. Where should I look?

The first thing to understand is how much funding you need. Toolbox Element 2.2 has information and tools that aid you in estimating the amount that the project might cost. Once you have a ballpark cost, you can start seeking funding. Toolbox Element 3.1 is designed as a one-stop shop for information regarding funding programs suited for small community infrastructure projects. The rest of Utility Management Cycle 3 aids in understanding the economics involved with using loans to pay for the remainder of your project.

We received a grant to fund our project; now what?

Once you have received funding for your project it is necessary to acquire consulting assistance to move your project through completion. Toolbox Element 5.1 is included in the toolbox to assist you in hiring the right professionals for your project. It is also important to understand how your funds will work throughout the project process. Toolbox Element 3.4 was created to help with this.

I am concerned with our agencies abilities to comply with the increasing standards, which are being imposed by the state and federal governments and the repercussions that may come with this.

It is important to familiarize yourself with current and future regulations in order to prevent your agency from becoming non-compliant, which can result in fines or other consequences. Toolbox Element 6.2 contains links to current and proposed regulations. It may also be helpful to reach out to other agencies that might be facing the same issues and see how they plan to meet new and upcoming regulations. Toolbox Element 1.1 and the Community Systems/Networking Map in Toolbox Element 1.3 are designed to aid you in connecting with surrounding agencies and encourage collaboration. Additionally, Toolbox Element 6.1 helps with managing your system, which includes keeping up with current standards.

We are currently a Mutual Water Company but want to consider adopting another form of governance structure; is there information to help us with this?

Toolbox Element 1.2 contains information on the benefits of different governance structures, as well as necessary steps to form such an entity.

Now that our project is done, what should we be doing?

Toolbox Element 6.1 provides resources to aid you in managing and operating your system. In addition to this, Toolbox Element 6.3 and Toolbox Element 6.4 are aimed at preparing a utility financially for further improvements, funding ongoing maintenance, and capital replacement.

Organize and Plan for Success

Understanding This Portion of the Utility Management Cycle

This portion of the Utility Management Cycle relates to the foundational component of the Three Essentials of Project Implementation. That is the Organizational Capabilities and Will to Act. The governing organization must be chartered in such a way as to have the powers to provide utility services. It is also helpful if the organization can qualify for grants. The organization must also have the capabilities to undertake the steps needed to implement projects, and must have the will to act and make the decisions necessary throughout the implementation process. Successful organizations have project champions who help identify and clarify the issues to be addressed and help orchestrate the overall process. The project champion does not need to be a technical expert, just a dedicated person to keep pushing a project forward.

The toolbox elements summarized in this section provide connections for small districts to network with others, summaries of governance options and requirements, tools to help districts to organize and manage for success and funding eligibility, and useful publicly available data presented as GIS maps to help small communities apply for funds.

Toolbox Elements

The toolbox elements prepared under this program that can help small agencies organize and plan for success are summarized in Table 1.1 below.

Table 1.1 Toolbox Elements to Organize and Plan for Success

Toolbox Element	What it is and How it can be Used
1.1: Community Networking Directory:	A contacts list of water and wastewater providers who can be called upon.
1.2: Governance Summaries:	An overview of options, benefits, and steps required to form various types of service entities
1.3: GIS Maps:	Census, legislative, and other public data to help agencies access information needed for applications

The following sections provide a summary of the toolbox elements themselves and how they can be used by small agencies to help progress a project through the Utility Management Cycle. Further detail on the toolbox elements is provided in the referenced appendices.

Element 1.1: Community Networking Directory

Introduction to the Toolbox Element

The Community Networking Directory is included in Appendix 1.1 and provides a summary and contact information for the service providers within the NCRP[1] based on publically available information and follow-up from the NCRP Water and Wastewater Service Provider Outreach and Support Program System

[1] http://www.northcoastresourcepartnership.org/

Needs Survey. Also included in Element 1.1 are references to local assistance agencies that are available to provide guidance and support.

How to Use the Toolbox Element

It is important to recognize that many of the issues and challenges faced by a small community when navigating the Utility Management Cycle have already been addressed by other communities. Although specifics are unique to the local community, the overall issue or challenge for one community has been encountered by others in the past. The Community Networking Directory is a reference to other service providers who can provide advice, guidance, and assistance. Peers can help with nearly any aspect of the Utility Management Cycle. Some of the issues where a peer from a similar agency or tribe could provide assistance can include the following:

- Regulatory requirements
- Operations
- Staffing and system management
- Budgeting and rate setting
- Technical matters related to system upgrades
- Consultant selection

Making the peer interaction beneficial to all parties can be enhanced with the focus on a few key aspects such as the following:

- Clearly define the issue or challenge you want to address.
- Select several people from the Networking Directory to contact. You may not be able to connect with some, or they may not have the expertise you need. You can also ask any of the representatives listed in the list Local Assistance Agencies (included in Appendix 1.1) if they can recommend another agency or tribe that has experience with the issue your are facing. These assistance agencies interact quite a bit with small water and wastewater service providers and will likely have someone in mind.
- When you reach someone, let them know who you are, that you are looking for a little advice, and concisely state your request.
- Ask if they have advice of who else you might contact.
- Thank them for their assistance and offer your help if they ever need any help.
- Keep the interactions brief and respect the time of others.

  Keep in mind that people are generally willing to help others if they are simply asked. Those who need the help have to take the first step to create the interaction that will get them the help. Not every connection will be successful and so try again if needed.

There are also many agencies who offer help to small service providers. A list of contact information for these agencies is provided in Appendix 1.1. It is highly recommended that systems in need of assistance reach out to these contacts and utilize their knowledge and expertise.

Element 1.2: Governance Summaries

Introduction to the Toolbox Element

The governance model that a utility operates under affects how the agency or tribe is operated and managed, as well as the funding and other assistance that may be available to the agency or tribe. The Governance Summaries are presented in Appendix 1.2 and provide a description of the primary fundamental organizational models applicable to small utilities. While California law allows for the creation

of many types of districts, this guide is limited to the most common ones, which provide for a broad and flexible range of services.

These Governance Summaries are intended to provide readers with baseline guidance on how to form the common types of legal entities that can qualify for funding. The three main types considered in this analysis are as follows:

- Independent Public Districts,
- Dependent Public Districts, and
- Non-Profit Corporations

For profit corporations are another common type of utility provider, but are generally not eligible for government funding programs and are not discussed in this toolbox element. Tribal entities provide water and wastewater services and information is provided about eligibility for agency or tribe funding types in the Funding Eligibility by Governance Structure Summary Table, however a detailed summary of Tribal utility providers is not included here. Similarly, the formation of a new city is also not covered in this toolbox element.

How to Use the Toolbox Element

Creating a completely new utility district is not common, but it would occur if a new development was created that would be serviced by an independent utility system. It is more common that a system already exists and the system leadership would like to know what funding could be available under their current structure and perhaps consider changing the governance structure of the district if there was enough advantage to justify the change. The Funding Eligibility by Governance Structure Summary Table in Appendix 1.2 shows funding eligibility by governance structure.

The Governance Summaries presented in Appendix 1.2 provide an overview of five general types of districts considered in this analysis, advantages and disadvantages, formation process, funding eligibility, and other aspects of these common types of districts. If one is most interested in changing an existing boundary, Local Agency Formation Commission (LAFCO) contracts are provided for North Coast counties.

Element 1.3: GIS Maps

Introduction to the Toolbox Element

Geographic Information System (GIS) data is in common use and can be a particularly valuable tool for the planning and management of a utility system. A geographic information system integrates hardware, software, and data for capturing, managing, analysing, and displaying geographically referenced information. GIS allows the user to analyse and visualize data in many different ways revealing relationships, patterns, and trends that can be displayed visually.

Data layers are available from many sources and these data layers can be combined and evaluated to provide analysis as well as presentation of district specific information. Further information regarding GIS data is provided in Appendix 1.3, and additional useful GIS data layers can be accessed through the NCRP GIS page[2].

[2] http://www.northcoastresourcepartnership.org/app_pages/view/7718

How to Use the Toolbox Element

This Toolbox Element captures GIS data layers useful to agencies in preparing funding applications and includes mapping of the Community Networking Directory Data. There are many types of software available for the creation, manipulation, viewing, and presentation of GIS based data. The effective use of the software to take advantage of the data requires a good functional understanding of GIS and how to use it. This often takes training and experience, although some have taught themselves. This toolbox is not intended to provide instruction regarding available software or how to use it, but rather provides access to selected GIS layers that could be useful to small community utility systems given the availability of appropriate software and expertise.

If a small community wishes to take full advantage of a GIS system, expertise and assistance is needed. Many professional consultants have the expertise necessary to help small communities make productive use of GIS for their projects. Assistance with consultant selection is provided with Toolbox Element 5.1: Guidance for Hiring Professionals.

Match Needs to Economical Technologies

Understanding This Portion of the Utility Management Cycle

Small agencies typically undertake an infrastructure project either because of a regulatory mandate or as part of a repair and replacement program. Understanding common infrastructure technologies and what they cost is an important part of developing initial budgets so that an agency or tribe can begin the process of developing a multi-year Capital Improvement Program (CIP), applying for funding and understanding the impact of proposed improvements on rates.

Toolbox Elements

The toolbox elements in this section are summarized in Table 2.1. These include general overviews of technologies appropriate for small community water and wastewater systems and general cost estimating charts and other cost estimating tools. In combination, these tools can help a local agency or tribe arrive at "order-of magnitude" cost estimates. These tools are not a substitute for a detailed engineering evaluation but are rather a way to begin the process of understanding alternatives and budgets. The Utility Management Cycle Element 3, Create Viable Financing Strategies, contains additional tools to move from "order-of magnitude" estimates to financing and cash flow.

Table 2.1 Toolbox Elements to Match Needs to Economical Technologies

Toolbox Element	What it is and How it can be Used
2.1: Technology Overviews:	Overviews of common issues, technologies, and evaluation factors to help select alternatives
2.2: General Cost Estimating Strategies:	Cost estimating charts to help develop order of magnitude estimates for various types and sizes of infrastructure to begin scoping overall funding strategies

The following sections provide a summary of the toolbox elements themselves and how they can be used by small agencies to help progress a project through the Utility Management Cycle. Further detail on the toolbox elements is provided in the referenced appendices.

Element 2.1: Technology Overviews

Introduction to the Toolbox Element

There are many technologies used in water and wastewater systems and for small communities. The challenge is in matching infrastructure needs with the most economical and appropriate technologies.

Evaluating needs should be based on first identifying the problem to be solved or the requirements to be met and then matching candidate technologies to the situation. There are usually multiple technical options available that can be evaluated based on various project specific characteristics. These characteristics often include ability to meet technical requirements, complexity, ease of operations and maintenance, and other criteria. If a community is growing, the potential to expand should be evaluated. Regulations are ever changing, so the ability of a system to be adapted to future requirements is also significant.

The Technology Overviews provide information to introduce potential technologies for different applications and are contained in Appendix 2.1.

How to Use the Toolbox Element

Addressing complex technical issues will, in most cases, require the assistance of professional consultants. Assistance with consultant selection is provided with Toolbox Element 5.1: Guidance for Hiring Professionals.

Appendix 2.1 provides a decision guide to help one navigate the process of identifying the need or the issue to be addressed and then matching technology overviews to help further understand the issue. Technology overviews are presented as both short fact sheets within this Toolbox and as references to web based resources available from regulatory agencies and other sources. There is no single source for all technical information that a small community may need and so it takes expertise and dedication to research and consider technologies for a particular application. This is, in part, where a local project champion and professional consultants can collaborate together to help the community develop the best solution.

The use of the technology overviews should be considered in the context of cost, which is discussed further under Toolbox Element 2.2: General Cost Estimating Charts, and through the Toolbox Elements under Chapter 3: Create Viable Financing Strategies.

Element 2.2: General Cost Estimating Strategies

Introduction to the Toolbox Element

A general cost estimating tool and references to additional cost estimating guides and charts are presented in Appendix 2.2. These cost estimating guides provide tools for estimating "order of magnitude" costs also known as a "Class 5" cost estimate. This type of estimate can be conducted at a conceptual level of project development and is intended for screening of alternatives or use with preliminary funding applications.

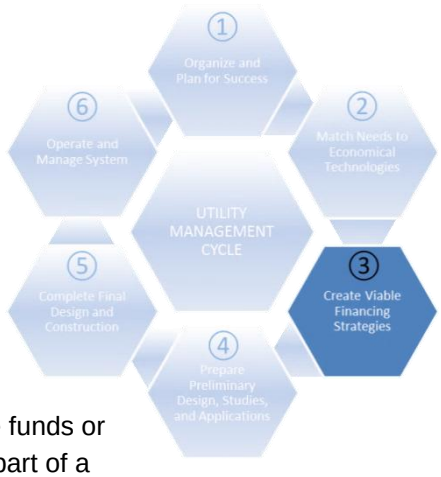
How to Use the Toolbox Element

The general cost estimating tool and guides presented in Appendix 2.2 are based on cost summaries from similar projects and can be used for the relative comparison of alternatives. The cost estimates derived from the tool are best used for comparing the relative magnitude of costs of alternatives rather than for estimating actual anticipated costs of a finished project. This is because at a conceptual screening level of analysis, the project is not sufficiently defined to accurately estimate actual costs. The order of magnitude costs are useful for determining which alternative is less expensive to construct. This can be an aid in selecting which alternative to further develop and evaluate. However, the tool can also be used to develop cost information for preliminary funding applications. It is during the subsequent further development, that more detailed capital and operations and maintenance costs can be developed.

Up-front costs typically include planning, permitting, engineering, and construction. Land and other up front capital costs may be required as well. It is always important, when evaluating alternatives, that costs should be considered based on what is most economical rather than what may initially appear to be a bargain. Evaluating what is most economical should be determined based on one time up-front costs (capital costs) as well as ongoing operational and maintenance costs. The useful life of facilities should also be considered when evaluating lifecycle costs so that all costs paid over the life of the facility are evaluated when considering alternatives.

Create Viable Financing Strategies

Understanding This Portion of the Utility Management Cycle



Financing is the third portion of the Three Essentials of Project Implementation. Financing has two main components.

First, there is securing money up front to pay for studies, design, permitting and other preparatory costs as well as to pay for construction of improvements. This up-front money may come in the form of a grant, that does not need to be paid back, or in the form of a loan, that will typically have annual payments. Local agency or tribe funds can also be used to pay for part or all of the upfront costs. Often times, funding programs require a local match of agency or tribe funds or in kind services. Therefore, local contributions are often an essential part of a funding package.

The second main component is collecting enough money on an ongoing basis to pay back loans and to fund operations, maintenance, replacement, reserves, and other costs. It is important to consider both securing the money up front to completely fund the necessary work, and generating enough revenue over time to pay off any loan obligations and to cover replacement and other costs.

The thoughtful consideration of both up front and ongoing costs is essential for creating a viable financing strategy. Creating the financing strategy itself is a valuable part of the process and small communities need to plan for paying costs associated with the preliminary work needed to plan the overall financing strategy and pursue funds. It is typically necessary to fund these up-front costs prior to being approved for a larger overall funding package, although some funding programs may reimburse small communities for these types of preliminary costs during the planning and design phase of a project.

Toolbox Elements

The toolbox elements summarized in this section are presented in Table 3.1 and provide an introduction to funding programs available to small operations. In addition, Capital Recovery Tables are presented that are used to convert an up-front loan amount into annual payments. Capital Improvement Financing Summaries are presented to highlight common mechanisms for generating revenue to pay off debts associated with loans and other capital improvement costs. Information related to Cash Flow is also presented to assist small communities manage funds during a project's development and construction.

Table 3.1 Toolbox Elements to Create Viable Financing Strategies

Toolbox Element	What it is and How it can be Used
3.1: Funding Program Summaries:	A one-stop information shop about funding programs suited to small community infrastructure projects
3.2: Capital Recovery Tables:	Lookup tables to translate the portion of total project costs not paid by grant into annual debt service requirements met through a revenue mechanism
3.3: Capital Improvement Financing Summaries:	Summary of strategy options for generating revenue to pay the annual debt service associated with capital improvement
3.4: Cash Flow Considerations:	Assists entities in understanding the funds needed to move a project through planning, design, and construction

The following sections provide a summary of the toolbox elements themselves and how they can be used by small operations to help progress a project through the Utility Management Cycle. Further detail on the toolbox elements is provided in the referenced appendices.

Element 3.1: Funding Program Summaries

Introduction to the Toolbox Element

Summaries of common funding program are presented in Appendix 3.1. The funding program summaries present a general overview of many of the more common funding programs that are available to small communities for financing infrastructure projects.

How to Use the Toolbox Element

The summaries in Appendix 3.1 provide general characteristics of the common funding programs and requirements. This information can be used by local staff and officials to begin to identify possible loan and grant funding opportunities, and in many cases initiate the funding process. Funding programs are competitive and complex; therefore, local agencies may need professional expertise to help them through the overall process. Nonprofit assistance agencies (listed in Appendix 1.1) or the funding agencies themselves may be able to help as well.

Element 3.2: Capital Recovery Tables

Introduction to the Toolbox Element

Capital Recovery Tables are presented in Appendix 3.2. The purpose of a Capital Recovery table is to convert a loan amount into an annual payment amount given a forecasted interest rate. This is very useful when considering funding options and possible loan amounts so that annual costs to pay back loans can be calculated. These annual loan repayment costs are also known as the debt service. These debt service costs are part of the overall annual operating cost of a system and can then be factored into the overall rate setting process.

How to Use the Toolbox Element

The Capital Recovery Tables are used for selecting the appropriate Capital Recovery Factors (CRF). The appropriate CRF is selected by finding the intersection between the term of the loan on one axis and the

interest rate on the other axis. The CRF is multiplied by the loan amount to yield the annual payment over the term of the loan. This is a simple tool to help with planning annual costs and cash flow.

In some cases, more than one loan may be used and so the annual payment for each loan is determined separately and the resulting annual payments are added together. The terms of loans may be different or there may be other special repayment provisions and so annual payments may vary over time. Considering all costs and revenues for each year during the life of a project is valuable for forecasting long term cash flow.

Element 3.3: Capital Improvement Financing Summaries

Introduction to the Toolbox Element

Capital project financing summaries that provide information on three common types of debt financing are summarized in Appendix 3.3. There are a variety of financing methods that can be established by a local agency or tribe as a means to collect revenue and to pay the debt service on a loan for design and construction of projects. The following financing methods are presented in Appendix 3.3:

- Enterprise Revenue Borrowing
- Assessment or Special Tax Bonds
- General Obligation Bonds

How to Use the Toolbox Element

The summary presented in Appendix 3.3 is meant as a simple introduction to several of the more common debt financing methods. A table is provided, which includes an overview of the major features of these common methods of repaying loans. Agencies wishing to consider financing options should consult a financing specialist to better understand the details of potential financing methods, attorneys needed, and their overall funding strategy.

Element 3.4: Cash Flow Considerations

Introduction to the Toolbox Element

Cash flow is the management of all revenue and expenses associated with operating a system. Guidance for planning cash flow is presented in Appendix 3.4. Cash flow needs to consider all aspects of operating a system including operations, maintenance, depreciation, reserves, debt service, and other aspects of the system that include the inflow and outflow of cash. Cash flow should be based on considering all needs of the system based on the overall long term broad view of the utility management cycle. Short term or narrow view of expenses or revenues creates an unrealistic picture of cash flow and can lead to inadequate rates and charges, lack of appropriate maintenance and replacement, deferred costs, and future significant financial difficulties.

How to Use the Toolbox Element

The guidance provided in Appendix 3.4 is meant to provide an overview of the main considerations for cash flow management during the planning, design, permitting, and implementation of a project. Agencies should retain specialist to help in the planning of cash management, especially in terms of Asset Management and capital improvement planning where existing infrastructure is inventoried and future costs are forecasted. Specialized expertise should also be employed for conducting overall rate setting studies as this is the mechanism that will generate necessary revenue to operate the system over the long

term. Additional information on capital improvement planning and rate setting can be found in Appendix 6.3 and Appendix 6.4.

Prepare Preliminary Design, Studies, and Applications

Understanding This Portion of the Utility Management Cycle

The previous three portions of the Utility Management Cycle are based on aligning the Three Essentials of Project Implementation by developing a governance structure to lead the entire process, selecting the best technology to address the issue, and creating a financing strategy to provide the capital to build and operate the system. With a viable configuration, preliminary design, studies, and applications are needed to secure the funding to facilitate implementation.

Although final design plans for construction are not needed at this stage in the cycle, funding agencies want to see a well-developed technically feasible and cost effective strategy for a project. The preliminary design process is the means for achieving this understanding. Special studies are often needed to further evaluate the project and determine permit requirements. With these components, formal applications may be prepared for funding.

The toolbox elements summarized in this section provide a Consolidated Preliminary Engineering Report Template, which provides the format and content required by many funding agencies so they can evaluate a project. In addition, CEQA/NEPA (state and federal environmental laws) exemptions and checklists are provided to help configure projects to avoid more complex environmental requirements if possible and to identify environmental issues that must be addressed.

Toolbox Elements

The toolbox elements prepared under this program that can help small agencies prepare preliminary design, studies, and applications are summarized in Table 4.1 below.

Table 4.1 Toolbox Elements to Prepare Preliminary Design, Studies, and Applications

Toolbox Element	What it is and How it can be Used
4.1: Consolidated Preliminary Engineering Report (PER) Template:	Consolidated report outline, with model tables that will meet the needs of commonly used funding programs
4.2: CEQA/NEPA Exemptions and Checklists:	Summary of CEQA/NEPA exemptions and checklists to aid in meeting State and Federal environmental requirements and funding program requirements
4.3: Common Permit Triggers:	Summary of typical permits and what project components trigger them

The following sections provide a summary of the toolbox elements themselves and how they can be used by small agencies to help progress a project through the Utility Management Cycle. Further detail on the toolbox elements is provided in the referenced appendices.

Element 4.1: Consolidated Preliminary Engineering Report (PER) Template

Introduction to the Toolbox Element

A Preliminary Engineering Report (PER) is a planning document required by many state and federal agencies as part of the process of obtaining financial assistance for development of drinking water, wastewater, and other types of infrastructure projects. Oftentimes numerous state and federal agencies may be involved in the financing of an infrastructure project. Through improved coordination between state and federal agencies commonly involved in financing infrastructure projects, the Consolidated PER format was developed. This helps communities by allowing a PER to be developed that can serve multiple funding purposes.

USDA Bulletin 1780-2 is presented in Appendix 4.1, which presents guidance along with a detailed outline of a PER.

How to Use the Toolbox Element

The guidance and outline provided in Appendix 4.1 provides applicants and their consultants with the requirements for the preparation of a PER. A PER is required to apply for most types of public funding for infrastructure projects.

Element 4.2: CEQA/NEPA Exemptions and Checklists

Introduction to the Toolbox Element

The California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) provide the environmental framework for implementing projects in the State. Some types of projects are exempt from CEQA/NEPA or can be configured to avoid CEQA/NEPA triggers. Common CEQA/NEPA exemptions and the checklists that are used to evaluate projects for exemption eligibility are presented in Appendix 4.2.

How to Use the Toolbox Element

The guidance provided in Appendix 4.2 is meant to provide a general overview of the common exemptions and related environmental checklists so local agency or tribe staff and officials can gain a general understanding of the potential requirements. CEQA and NEPA are complex laws requiring careful interpretation and therefore CEQA and NEPA specialists will likely be needed to assist small communities in navigating through the CEQA/NEPA process.

Element 4.3: Common Permit Triggers

Introduction to the Toolbox Element

Certain types of projects or certain elements within a project can trigger permit requirements. These requirements can include CEQA/NEPA requirements discussed under Toolbox Element 4.2, as well as many other types of local, state, and federal permit requirements. Permits common to water and wastewater projects for small communities along with the typical situations that trigger permit requirements are presented in Appendix 4.3.

How to Use the Toolbox Element

The guidance provided in Appendix 4.3 is meant to give a general overview of the types of projects or project characteristics that commonly trigger different types of permits so that local agency or tribe staff and officials can gain insights into potential permit requirements. Permitting specialists will likely be needed to assist small communities in navigating through the permitting process.

Complete Final Design and Construction

Understanding This Portion of the Utility Management Cycle

Once the overall project concept is finalized and funding is secured, the final design and construction phases can commence. This is where the most significant capital outlays occur and depending on the timing of money from a funding program, it may be necessary to secure short term interim financing, also known as a bridge loan, to initially fund design and construction. When design and construction can commence will depend on the timing of the overall financing package, program deadlines, and other factors.

The design process should be a collaborative effort where the utility operators are working with the design professionals and regulators to configure the final plans and specifications to meet local needs as well as regulatory requirements. A construction contractor is selected through a public bidding process. The construction contract should be administered by professionals with construction management experience. The requirements of the construction contract depend on local agency or tribe contracting requirements, the public contract code, and specific requirements of the funding agencies.

The toolbox elements summarized in this section provide assistance to small agencies in hiring the professionals needed to help a District throughout the Utility Management Cycle and provides an overview of the process for the public bidding of construction projects.

Toolbox Elements

The toolbox elements prepared under this program that can help small agencies complete final design and construction are summarized in Table 5.1 below:

Table 5.1 Toolbox Elements to Complete Final Design and Construction

Toolbox Element	What it is and How it can be Used
5.1: Guidance for Hiring Professionals:	As a project moves from initial planning towards implementation, detailed, community-specific designs are required and communities will need to retain professional support
5.2: Public Bidding Process Overview:	Understanding how the public bidding process works, how to set up a successful project bid, and how the low bid contractor is selected

The following sections provide a summary of the toolbox elements themselves and how they can be used by small agencies to help progress a project through the Utility Management Cycle. Further detail on the toolbox elements is provided in the referenced appendices.

Element 5.1: Guidance for Hiring Professionals

Introduction to the Toolbox Element

Small communities will likely need professional assistance at various points throughout the Utility Management Cycle. The need for professional assistance may be relatively small during times of simple ongoing operations. However, when evaluating issues, planning solutions, securing funding, and implementing projects, a small community will likely be making extensive use of professionals. Professionals should be hired on the basis of their qualifications, experience, and approach to effectively provide the technical services needed by the community to achieve project goals. Once the best consultant is selected, then a detailed scope, schedule, and budget for services should be agreed upon. Guidance is provided in Appendix 5.1 to help small communities through the process of hiring and managing professionals to both meet the needs of the community and comply with applicable requirements associated with hiring professionals.

How to Use the Toolbox Element

The guidance in Appendix 5.1 provides resources to help in selecting professional consultants. An agency or tribe should ensure that the process they use is also consistent with specific requirements of any funding source that is being used to pay for professional consultant services.

Element 5.2: Public Bidding Process Overview

Introduction to the Toolbox Element

Professional consultants should be selected based on qualifications, unlike construction contracts, which are typically approached differently. Where public funds are involved, construction contracts, which are usually based on the plans, specifications and contract documents prepared by a professional consultant, are generally awarded based on the California Public Contract Code[3]. The process is usually in the form of a public bid, and information on this process is presented in Appendix 5.2.

How to Use the Toolbox Element

Appendix 5.2 provides key concepts within the public bidding of construction projects that an agency or tribe should be aware of. The Public Contract Code is complex and, depending on the sources of funding, there may be other requirements as well. Therefore, professional and/or legal assistance may be necessary to interpret project specific requirements.

[3] http://leginfo.legislature.ca.gov/faces/codes.xhtml

Operate and Manage System

Understanding This Portion of the Utility Management Cycle

Most of the life of a utility system is spent in the operations and management portion of the cycle, rather than in the project implementation portion of the cycle. This is the portion where ongoing regulatory compliance must be achieved, customers are served, systems are maintained, revenue is collected, and bills are paid. This is where long term trends can be identified along with future needs and projects to meet those needs are scoped.

There are many resources available to assist small communities operate and manage their systems and help prepare for additional, larger scale, improvement projects. The toolbox elements summarized in this section provide guidance to small communities to help them through technical, managerial, and financial aspects of operating a system.

Toolbox Elements

The toolbox elements prepared under this program that can help small agencies operate and manage their systems are summarized in Table 6.1 below.

Table 6.1 Toolbox Elements to Operate and Manage System

Toolbox Element	What it is and How it can be Used
6.1: Technical, Managerial, and Financial (TMF) Resources:	Tools to help agencies be organized and managed to improve overall operations and funding competitiveness
6.2: Regulatory Resources:	Sources to provide information to the utility operator on various federal and state regulations
6.3: Rate Setting Guidelines:	Linking the costs of projects to the need for rate increases and methods to set and change rates
6.4: Capital Improvement Planning Resources:	Part of the on-going Utility Management Cycle of planning for future system improvements

The following sections provide a summary of the toolbox elements themselves and how they can be used by small agencies to help progress a project through the Utility Management Cycle. Further detail on the toolbox elements is provided in the referenced appendices.

Element 6.1: Technical, Managerial, and Financial (TMF) Resources

Introduction to the Toolbox Element

There are many aspects to organizing, operating and managing a utility agency. Certain characteristics of how an operation is organized, operated, and managed can affect eligibility for funding. The Technical, Managerial, and Financial (TMF) resources presented in Appendix 6.1 provide many tools that small communities can take advantage of to improve overall operations and improve competitiveness for funding.

How to Use the Toolbox Element

Many of the resources provided in Appendix 6.1 can be utilized directly by small communities without outside help. If help is needed, there are a number of government and public service organizations that can provide additional assistance, which are included in Appendix 1.1. If further assistance is needed, then professional consultants can be retained as well.

Element 6.2: Regulatory Resources

Introduction to the Toolbox Element

Keeping a utility operating within the regulations set by state and federal agencies helps small systems improve infrastructure, management, and product quality to the consumer. However, with increasingly larger amounts of drinking and wastewater regulations, it can be difficult to ensure that all regulatory guidelines are being met. Appendix 6.2 provides links to the main regulatory agencies to help the utility access the information needed in order to stay in compliance.

How to Use the Toolbox Element

Following the links in Appendix 6.2 provide the utility with an overview of the federal and state regulatory requirements for the utility type. Additionally, these resources provide guidance and technical help to assist the utility in meeting current standards. Further information regarding regulatory resources can be directed to the local office of the regulatory agency (SWRCB, EPA, etc.).

Element 6.3: Rate Setting Guidance

Introduction to the Toolbox Element

A key component of effectively managing a utility is to properly plan for expenses and revenues. The rates that an agency or tribe sets for its services are the main source of ongoing funding for operations, maintenance, and in many cases replacement of infrastructure. It is important that small communities collect the appropriate amount of revenue to fund its operations. The resources in Appendix 6.3 provide guidance on rate setting.

How to Use the Toolbox Element

The guidance in Appendix 6.3 can be used directly by staff and the board of small community utility agencies to help guide the rate setting process. Rate setting should include technical analysis, which often requires additional expertise. There are several government and public service agencies that can provide some additional assistance with rate setting, which are listed in Appendix 1.1. In many cases, professional consultants may be required as well due to the technical nature of analysis that may be required to properly set rates.

Element 6.4: Capital Improvement Planning Resources

Introduction to the Toolbox Element

Even a very small agency or tribe typically has a significant amount of money invested in the infrastructure that supports the utility. Not only does this infrastructure need to be operated and maintained, but it needs to be upgraded to meet new regulations and standards, and needs to be replaced when it reaches the end of its useful life. The planning for upgrades and replacement of infrastructure is the foundation for Capital Improvement Planning and guidance to help utilities through this process is presented in Appendix 6.4.

How to Use the Toolbox Element

The guidance in Appendix 6.4 provides an overview of the Capital Improvement Planning process that can help local staff and officials understand how the process should be undertaken. The complex technical nature of Capital Improvement Planning will likely require the assistance of professional consultants who can help local communities evaluate existing infrastructure, identify needs, estimate costs, and prioritize and schedule projects. This is a central component of Asset Management that helps utilities effectively manage their investments in infrastructure on a perpetual basis.

This element of the Capital Improvement Planning and Asset Management results in new projects that then go back through the Utility Management Cycle.

Appendices

Appendix 1.1

Community Networking Directory

Why This Tool is Important

This toolbox provides users with contacts for other agencies in the area who might be useful sources of advice and assistance. It is good to communicate with others when planning a large project in order to learn from their experiences on what has and hasn't worked for them.

What the Tool Includes

- Community Agency or Tribe Directory Spreadsheet
    - This list is compiled from multiple sources. It is ever changing and may contain outdated information. Check the North Coast Resources website for updated versions of this directory. Though the Excel format is more user friendly, there is a PDF version available for those who prefer that format.
- Local Assistance Agencies
    - There are several non-profit assistance agencies that may be able to help with preliminary project scoping, funding applications and maintenance.

How to Use This Tool

The Community Directory is formatted as a table; therefore, it is sortable by clicking on the headings. An interactive map version of the Community Agency or tribe Directory Spreadsheet can be found in Appendix 1.3.

Additional Resources

- SWRCB DDW Drinking Water Watch[4]: The State Water Resources Control Board Division of Drinking Water (formerly the California Department of Public Health) also manages a list of water service providers.
- Small Community Wastewater Strategy[5]

NCRP Staff Contacts

Jennifer Jenkins Kuszmar (707) 267-9540 jjenkins@co.humboldt.ca.us	Katherine Gledhill (707) 795-1235 kgledhill@westcoastwatershed.com	Cybelle Immitt (707) 267-9542 cimmitt@co.humboldt.ca.us

The external information for this toolbox element was not created by GHD and is provided as an additional reference that may be useful for the user. Other additional information may also be available to the user from outside references. GHD is not responsible for the content available from other entities.

[4] http://drinc.ca.gov/DWW/Maps/Map_Template.jsp
[5] http://www.waterboards.ca.gov/water_issues/programs/grants_loans/small_community_wastewater_grant/strategy.shtml

Appendix 1.2

Governance Summaries

Why This Tool is Important

The governance structure utilized by a utility provider affects how the agency is operated and what funding is available. This tool identifies the range of governance structures available to small utility providers and compares their unique characteristics, such as, formation process, powers, governing board, and authority to establish different funding sources. Additionally, this tool provides information regarding funding opportunities available based on an agency or tribe's governance structure, which can expedite the screening process when seeking funding.

What the Tool Includes

This tool includes information regarding the advantages and disadvantages, formation processes, funding eligibility, and other aspects of the three main types of governance structures evaluated: Independent and Dependent Public Districts, and Non-Profit Corporations.

- Governance Summaries
- Funding Eligibility by Governance Structure Summary Table

How to Use This Tool

The content contained in this appendix is designed to service two distinct pathways in utility district operation. The first is to provide information on creating or changing the governance structure of the agency or tribe. This information includes advantages and disadvantages, formation processes, funding eligibilities, and other aspects of each governance structure. The second is to provide the necessary information for an existing agency or tribe to identify the types of funding available to them based on governance structure type.

Additional Resources

The following links provide information on the California Association of Local Agency Formation Commissions (LAFCO). LAFCOs are agencies established to encourage the formation of orderly government agencies in order to preserve land resources and discourage urban sprawl. Your county LAFCO will be involved in the formation of new districts or in modifying district boundaries.

- Northern California LAFCO Directory
- California LAFCO website[6]
- California Special Distracts Association[7]
- California Association of Mutual Water Companies[8]
- Private Water Law Blog[9]

The external information for this toolbox element was not created by GHD and is provided as an additional reference that may be useful for the user. Other additional information may also be available to the user from outside references. GHD is not responsible for the content available from other entities.

[6] http://www.calafco.org/
[7] http://www.csda.net/
[8] http://www.calmutuals.org/
[9] http://privatewaterlaw.com/

Appendix 1.3

GIS Maps

Why This Tool is Important

GIS can be a very productive device for project planning. This tool was created to provide some helpful GIS data information to small agencies. The maps in this appendix are aimed at aiding utilities in the planning process for everything from finding helpful contacts to aiding in funding applications.

What the Tool Includes

- Community Systems/Networking Map: This map provides the information from Appendix 1.1 in an interactive and user friendly map. It is intended to allow users to find agencies that are similar to them in order to collaborate and share knowledge.
    - This map contains 2010 Census data (Tract Number, Block Group, MHI, population, DAC), Legislative data (State Assembly District, State Senate District, Congressional District), Water Provider data (Contact, Address, Phone, Email, CDPH Water System Number, Clean Water SRF Project Numbers, System Name, Services Provided), and location information (County, Latitude, Longitude).
- Administrative Information by City and Census Designated Place Map (Admin by City & CDPMap): This map provides information on cities or census designated places that could be useful when applying for funding or permits.
    - This map contains 2010 Census data (Population, MHI, Number of Housholds, Area).
- Administrative Information by Census Block Group Map (Admin by Census Map): This map provides information on census block groups that could be useful when applying for funding or permits.
    - This map contains 2010 Census data (Tract Number,Tract MHI, Tract population, Block Group, Block Group Population, Block Group MHI), and Legislative data (State Assembly District, State Senate District, Congressional District).
- Environmental Resources Map[10]: The California Department of Fish and Wildlife has a Biogeographic Information and Observation System (BIOS) that contains environmental information that might be helpful.

How to Use This Tool

The Community Systems/Networking Map and Administrative Information Maps are in GeoPDF format. We have created and included GeoPDF Instructions to aid you in getting the most use out of these maps. We have also created Environmental Resources Map Instructions to assist in using the CDFW BIOS map.

Additional Resources

If specific data is desired sometimes other resources will have a more complete and current database of information. Additional data resources and the respective websites include:

- U.S. Fish & Wildlife Service: National Wetlands Inventory[11]

[10] https://map.dfg.ca.gov/bios/

- USDA Web Soil Survey[12]
- California Native Plant Society: Rare and Endangered Plant Inventory[13]

The external information for this toolbox element was not created by GHD and is provided as an additional reference that may be useful for the user. Other additional information may also be available to the user from outside references. GHD is not responsible for the content available from other entities.

[11] http://www.fws.gov/wetlands/
[12] http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm
[13] http://www.rareplants.cnps.org/

Appendix 2.1

Technology Overviews

Why This Tool is Important

There is a vast array of technologies available to address water and wastewater needs that are appropriate for small communities. Technologies are ever evolving with new approaches being developed, tested, and approved for use. Determining the apparent best technological approach to address the water or wastewater need of a small community is achieved through experience, analysis, and judgment of professionals familiar with technologies and their appropriate application.

It is not possible for this summary overview to provide information for all technologies that may be available to address a particular need nor to provide a complete analysis and decision approach. Instead, this overview provides a number of examples of technologies, presented in several different formats, to give the user an appreciation for the range of technology solutions available. It is important that the representatives of small communities have this appreciation so that they are able to better communicate with regulators. Professional consultants can provide the necessary expertise to interpret requirements and match technologies to needs.

What the Tool Includes

This toolbox element provides examples of technologies that can address a small sample of resources for agencies; some of which have been developed by GHD, and some of which are references to other available resources. This is by no means a complete listing of technologies, nor a complete analysis of any single technology. Rather, the overviews and references provide a number of examples of what may be available for small communities. This information should be augmented with professional assistance and further evaluation of the particular needs of the community.

Drinking Water Technologies

- Pumps
- Storage Facilities
- Water Distribution

Wastewater Technologies

- Small Community Wastewater Overview
- Septic Systems
- Conventional Gravity Sewers
- Alternative Sewer Systems
- Trenchless Sewer Rehabilitation
- Aerobic Treatment Units
- Package Plants
- Biosolids
- Spray and Drip Irrigation

Technologies Applicable to Drinking Water and Wastewater

- Water – Wastewater Matrix

How to Use This Tool

Small community representatives are encouraged to explore the example technologies and references in this tool box as part of the overall education process associated with understanding the issues to be addressed. A number of the organizations listed under the Additional Resources section below provide additional small community assistance at no cost. This type of additional assistance can be very valuable in further understanding the nature of the specific issues to be addressed and the potential options that may be available. Use of these support organizations is a good step prior to selecting professional consultants to assist with more detailed technical analysis and design.

Additional Resources

There are a number of organizations that can provide additional information and assistance to small communities as part of the exploration of technologies. The following are examples of a number of the more commonly used organizations that could be of assistance to Northern California small communities.

Drinking Water Organizations

- Center for Disease Control and Prevention[14]
- EPA WaterSense[15]

Wastewater Organizations

- California Water Environment Association[16]
- National Environmental Services Center[17]

Organizations Providing Technology Assistance for a Variety of Small Community Needs

- National Environmental Services Center[18]

The external information for this toolbox element was not created by GHD and is provided as an additional reference that may be useful for the user. Other additional information may also be available to the user from outside references. GHD is not responsible for the content available from other entities.

[14] http://www.cdc.gov/healthywater/drinking/travel/household_water_treatment.html
[15] http://www.epa.gov/watersense/
[16] http://www.cwea.org/
[17] http://www.nesc.wvu.edu/wastewater.cfm
[18] http://www.nesc.wvu.edu/index.cfm

Appendix 2.2

General Cost Estimating Strategies

Why This Tool is Important

It is important to have a general understanding of different costs associated with projects to help determine feasibility and give agencies an idea of what amounts of funding will be needed. It is important to realize that municipal projects take many years to get from planning to completion. During this time the costs involved will most likely increase due to inflation. Therefore, these increased prices should be accounted for. Similarly, because most municipal projects are government funded, they require that the construction crews earn prevailing wage. This can be a significant cost and must not be overlooked during planning and funding phases.

What the Tool Includes

- Project Cost Estimating Tool
- AACE Cost Estimate Classification System

How to Use This Tool

The Project Cost Estimating Tool is a spreadsheet that allows the user to input specifics about a project's capital costs and percentage estimates of other costs to result in a Class 5 cost estimate[19] for a project. The spreadsheet provides typical percentages for cost estimating, which can be adjusted if desired. The spreadsheet also breaks out costs into a pie chart for visualization purposes.

Use the AACE Cost Estimate Classification System to help understand the importance of cost estimating throughout the different phases of a project.

Additional Resources

Additional useful references for help with cost estimating are listed below:

- Conceptual Cost Estimating Guide[20]
- Southern Nevada Water Authority Cost Estimating Guide[21]
- Simple cost estimating guide with some simple procedures and cost curves[22]
- ASCE guide Preliminary Cost Estimation Models for Construction, Operation, and Maintenance of Water Treatment Plants[23] (need an ASCE membership and password for the full text)
- EPA cost curves[24]
- Slow sand filter and DE guidance[25]
- Cost curve example[26]

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[19] http://www.protongroupco.com/estimating_process
[20] ftp://users.plateautel.net/sverhines/storefiles/ENMRWA Conceptual Cost Estimating Guide DRAFT 7-27-2005.pdf
[21] http://water.nv.gov/hearings/past/springetal/browseabledocs/exhibits%5CSNWA Exhibits/SNWA_Exh_194_Cost Estimating Guide.pdf
[22] http://wind.enavajo.org/docs/CD/NNCIO_Cost_Estimating_Guide 2007.pdf
[23] http://ascelibrary.org/doi/abs/10.1061/(ASCE)IS.1943-555X.0000155
[24] http://yosemite.epa.gov/water/owrcCatalog.nsf/065ca07e299b464685256ce50075c11a/b772717b690a5b1a85256b0600723835!OpenDocument
[25] http://www.doh.wa.gov/Portals/1/Documents/Pubs/331-204.pdf

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[26] http://www.ccgov.org/uploads/PublicWorks/Rt40_WaterStudies/SurfaceWaterStudy/Tables/Water Treatment Cost Curves 06_28_06.xls

Appendix 3.1

Funding Program Summaries

Why This Tool is Important

One of the common barriers to system improvement is lack of funds. This tool provides information on what funding agencies are looking for in terms of project types and which stage or component of the project is funded. This will help to identify the correct funding agency for the current stage of your project.

What the Tool Includes

- Funding Agency Mission Table
- Funding Program Agency/Project Type Matrix
- Alternative Energy Funding Programs
- Alternate Funding Sources

How to Use This Tool

- Funding Agency Mission Table: When submitting an application for funding, it is important to understand the mission of the agency, so that applications can highlight project components which fit within the mission, which will typically improve the project's competitiveness. This tool provides the main mission of funding agencies which should be addressed in project application.
- Funding Program Agency/Project Type Matrix: This table provides information on the stage or component of a project an agency will fund. The matrix can be used by looking up the stage of your project and/ or a component that needs funding and then reading across to the types of programs.
- Alternative Energy Funding Programs: Provides information on which funding agencies provide financing for renewable energy projects.
- Alternative Funding Sources: This is a list of funding source information that is not included with the Additional Resources below.

Additional Resources

California Financing Coordinating Committee[27] (CFCC): A multi-agency group formed to facilitate and expedite the completion of various types of infrastructure projects by helping customers combine the resources of several agencies. The CFCC has several useful tools:

- A common inquiry form that can be used to query multiple funding agencies about their ability to fund a project. A copy of the inquiry form and answers to other questions on the CFCC can be obtained via and e-mailed to ibank@ibank.ca.gov.
- Funding Program Tables with information on the program, department, type and purpose of funds, eligibility, funding limits and contacts. The tables can be accessed via the CFCC website and found in the funding fair handbook link or in the funding programs tab at the top of the page. A copy of the 2014 Water and Wastewater funding programs Tables are included with this Toolbox for reference.

[27] http://www.cfcc.ca.gov/

- The State Water Board, Division of Financial Assistance (DFA), “Funding Finder” is available to assist you in finding the most appropriate funding source for your water quality project. After answering a few simple questions about your project, the “Funding Finder” will provide you with DFA’s currently available funding source(s). The “Funding Finder” is located on the left side of DFA’s web page[28].
- CoolCalifornia[29] also has a Funding Wizard[30] which helps project organizers locate grant funding and initiatives for projects which are concerned with sustainability.

The external information for this toolbox element was not created by GHD and is provided as an additional reference that may be useful for the user. Other additional information may also be available to the user from outside references. GHD is not responsible for the content available from other entities.

[28] http://www.waterboards.ca.gov/water_issues/programs/grants_loans/
[29] http://www.coolcalifornia.org/
[30] http://www.coolcalifornia.org/funding-wizard-home

Appendix 3.2

Capital Recovery Tables

Why This Tool is Important

Planning for loan repayment is an important component in project implementation for small utilities. Using the tables in this toolbox, the annual cost required to repay a project loan can be determined. Using these costs, utilities can plan to set rates or financial goals, which cover the cost of the loan.

What the Tool Includes

- Capital Recovery Calculator
- Capital Recovery Tables

How to Use This Tool

To use the Capital Recovery Calculator, click on the link above and follow the instructions in the spreadsheet. The calculator provides an annual loan payment cost based on the full loan amount, interest rate, and term. The calculator was developed in MS Excel 2010, but may be compatible with other versions of Excel. If Excel is not available, use the Capital Recovery Tables and the formula below to estimate debt repayment for a specific loan amount.

$$\boldsymbol{Loan\ Amount\ (Debt)\ x\ Capitol\ Recovery\ Factor\ (From\ Table) = Annual\ Cost}$$

The capital recovery factor is obtained from the Capital Recovery Tables based on the estimated loan term (in years) and the estimated interest rate. The estimated loan amount is based on the projects costs that will be financed, excluding grant funds and agency or tribe reserves. Toolbox Element 2.2 provides assistance in estimating project costs.

The external information for this toolbox element was not created by GHD and is provided as an additional reference that may be useful for the user. Other additional information may also be available to the user from outside references. GHD is not responsible for the content available from other entities.

Appendix 3.3

Capital Improvement Financing Summaries

Why This Tool is Important

If an agency or tribe does not have sufficient reserves to complete a project, an alternate financing source is needed and those that benefit from the improvements should contribute to paying for them. Even though a variety of funding sources could be pursued including grant funds, it is typical that some form of loan will need to be obtained to complete a project. A variety of financing methods can be set up to assure the lender that a loan will be repaid and act as loan security.

What the Tool Includes

- Financing Summaries

How to Use This Tool

Three common financing methods are summarized in this tool so that small community representatives may familiarize themselves with available options. A review of each method is presented, including a comparison table containing information about terms, requirements, and necessary documentation.

Agencies wishing to consider financing options should consult a financing specialist to better understand the details of potential financing methods, attorneys needed, and the overall funding strategy. Other less common Financing Methods may be appropriate for special circumstances and local entity representatives should consult with funding professionals for other applications. Regardless of which method is chosen, a strong, experienced financing team is essential for successful water and wastewater agency or tribe debt financings.

Additional Resources

California's Proposition 218 was passed by the voters in November 1996. This constitutional amendment significantly affected the ability of local government to raise funds. The requirements are complex and local entity representatives are encouraged to contact an attorney specializing in the interpretation of the requirements. The following links provide general information on Proposition 218 as overall guidance.

- League of California Cities Proposition 218 Implementation Guide[31]
- Understanding Proposition 218 from the Legislative Analysts Office[32]
- Proposition 218 for Special Districts, California Special District Association[33]
- Water and Wastewater Projects, Financing with Tax-Exempt Bonds, Orrick[34]
- An Introduction to California Mello-Roos Community Facilities Districts, Orrick[35]

[31] http://www.cacities.org/UploadedFiles/LeagueInternet/c2/c2f1ce7c-2b14-45fe-9aaa-d3dd2e0ffecc.pdf
[32] http://www.lao.ca.gov/1996/120196_prop_218/understanding_prop218_1296.html
[33] http://www.csda.net/wp-content/uploads/2013/04/2013-CSDA-Prop-218-WEB.pdf
[34] http://www.orrick.com/Events-and-Publications/Documents/Water-and-Wastewater-Projects-Financing-with-Tax-Exempt-Bonds.pdf
[35] http://www.orrick.com/Events-and-Publications/Documents/1180.pdf

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Appendix 3.4

Cash Flow Considerations

Why This Tool is Important

Cash flow is the management of all revenue and expenses that occur within the operation of a utility system. There are many aspects incorporated within a utility's cash flow, including operations and maintenance, depreciations, reserves, and debt service. Understanding how to combine all of these types of cash flows in a big picture financial planning method is imperative in creating an efficient and sustainable utility service. The tools presented in this appendix are meant to provide an overview of the cash flow process for small utilities.

What the Tool Includes

- Cash Flow Considerations Table
- Cash Flow Considerations Example, Project Funding

How to Use This Tool

Reviewing the material provided in this appendix will help to familiarize small utilities with the process of cash flow. The Cash Flow Considerations Table identifies which elements of the Utility Management Cycle to address during each phase of a project. The Cash Flow Considerations Example shows typical project cash flows to help with a conceptual understanding of the process. Should further assistance in financial planning be required, the utility could seek guidance from outside resources or consultants.

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Appendix 4.1

Consolidated Preliminary Engineering Report (PER) Template

Why This Tool is Important

A Preliminary Engineering Report (PER) is a planning document required by many state and federal agencies in order to obtain funding for drinking water and wastewater projects. The Consolidated PER in this section is designed to enable the user to complete a single report, which satisfies the requirements of several of the major funding agencies for water related projects.

What the Tool Includes

This tool includes USDA Bulletin 1780-2, which provides detailed guidance as well as a suggested outline of how to complete a PER.

- USDA Bulletin 1780-2

How to Use This Tool

The guidance outlined in the Consolidated PER provides utility agencies and their consultants with the necessary information required to apply for funding through many state and federal agencies.

Additional Resources

- CDPH Proposition 50 Funding Technical Report Guidelines
- Small System Guide to Rural Utilities Service Management Reports[36]

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[36] http://www.rcac.org/assets/Small System Guide to RUS Management Reports.pdf

Appendix 4.2

CEQA/NEPA Exemptions and Checklists

Why This Tool is Important

It is important to have an understanding of the CEQA and NEPA documentation needed for various projects and what types of projects may be exempt from the provisions of CEQA and what types of projects may require completion of the Negative Declaration, a Mitigated Negative Declaration and an Environmental Impact Report/Statement. It is also important to know the environmental information required to determine if a project is exempt or requires the completion of a CEQA document.

What the Tool Includes

- Common CEQA Exemptions and Typical Documents
    - This tool presents a general discussion of which type of CEQA document may be needed for a project, including project that may be exempt from CEQA.
- Notice of Exemption Form
    - This form can be used by public agencies to file an Exemption to CEQA if the project is eligible for an exemption.
- CEQA Initial Study Checklist Form
    - This form can be used in the early stages of project development to identify potential environmental impacts and is part of the CEQA process.
- Sample Federal Crosscutter Form
    - This form is helpful in understanding additional federal environmental law compliance that may apply to your project. This form was developed for the Safe Drinking Water SRF Program, but highlights the Federal Acts projects will need to comply with.

How to Use This Tool

The guidance provided in Appendix 4.2 is meant to provide a general overview of the common exemptions and related environmental checklists so local agency or tribe staff and officials can gain a general understanding of the potential requirements. CEQA and NEPA are complex laws requiring careful interpretation and therefore CEQA and NEPA specialists will likely be needed to assist small communities in navigating through the CEQA/NEPA process.

- California Natural Resources Agency Links to Statutes and Guidelines and Frequently Asked Questions[37]
- California Office of Planning and Research CEQA Information Page[38]
- Association of Environmental Professionals CEQA Flow Chart[39]

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[37] http://resources.ca.gov/ceqa/
[38] http://www.opr.ca.gov/m_ceqa.php
[39] https://www.califaep.org/ceqa/ceqa-flowchart

Appendix 4.3

Common Permit Triggers

Why This Tool is Important

It is important to have an understanding of the common regulatory permit triggers that may occur when proceeding with a project and what types of permits and other approvals would be required from the applicable regulatory agency.

What the Tool Includes

- Common Permit Triggers Summary Document

How to Use This Tool

The guidance provided in Appendix 4.3 is meant to provide a general overview of the common regulatory permit triggers and related environmental approvals so local agency or tribe staff and officials can gain a general understanding of the potential requirements. There are many agency requirements and approvals that could apply to a project within jurisdictional areas and often times those requirements involve preparing a permit application to get project approval from the applicable agencies.

Additional Resources

The following are links to a variety of regulatory permit applications that may need to be completed for a project:

- U.S. Army Corps of Engineers[40]
- California State Water Resources Control Board[41]
- Regional Water Quality Control Board (permit application depends on Board):
    - Region 1 (North Coast)[42]
    - Region 2 (San Francisco Bay)[43]
    - Region 3 (Central Coast)[44]
    - Region 4 (Los Angeles)[45]
    - Region 5 (Central Valley)[46]
    - Region 6 (Lahontan)[47]
    - Region 7 (Colorado River)[48]
    - Region 8 (Santa Ana)[49]
    - Region 9 (San Diego)[50]

[40] http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/ObtainaPermit.aspx
[41] http://www.waterboards.ca.gov/water_issues/programs/cwa401/
[42] http://www.waterboards.ca.gov/northcoast/water_issues/programs/water_quality_certification.shtml
[43] http://www.waterboards.ca.gov/sanfranciscobay/certs.shtml
[44] http://www.waterboards.ca.gov/centralcoast/water_issues/programs/401wqcert/index.shtml
[45] http://www.waterboards.ca.gov/losangeles/water_issues/programs/401_water_quality_certification/CleanWaterApp.shtml
[46] http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml
[47] http://www.waterboards.ca.gov/lahontan/water_issues/programs/clean_water_act_401/index.shtml
[48] http://www.waterboards.ca.gov/coloradoriver/water_issues/programs/401_certification/
[49] http://www.waterboards.ca.gov/rwqcb8/water_issues/programs/401_certification/index.shtml
[50] http://www.swrcb.ca.gov/sandiego/water_issues/programs/401_certification/index.shtml

- California Department of Fish and Wildlife[51]
- California State Lands Commission[52]
- San Francisco Bay Conservation and Development Commission[53]

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[51] https://www.dfg.ca.gov/habcon/1600/forms.html
[52] http://www.slc.ca.gov/Online_Forms/Surface_Leasing_Application_Home_Page.html
[53] http://www.bcdc.ca.gov/forms/forms.shtml

Appendix 5.1

Guidance for Hiring Professionals

Why This Tool is Important

As projects move forward and begin to near the design phase, it is important for agencies to have outside assistance to aid them in accomplishing their goals. Some examples of areas that might require aid include funding, permitting, legal and engineering. It is imperative that agencies hire competent professionals who will support and invest in a shared goal. This tool will assist agencies with hiring professionals who will be the best fit for their project.

This section contains a packet titled, "How to Select & Hire a Consultant" put together by the Rural Community Assistance Corporation. It contains a section titled "A Guide to Selecting Consultants for Rural Communities" as well as a guide titled "Engineering Firm Selection Process," which is published by the California Department of Public Health.

What the Tool Includes

- How to Select & Hire a Consultant

How to Use This Tool

By reading the suggestions provided in this resource, agencies will be able to obtain guidance on important information when going through the hiring process. It also gives examples of different forms that might be necessary or helpful in these situations.

Additional Resources

The following are links to resources developed by the RCAC in order to aid in planning a project:

- Getting Your Project to Flow Smoothly[54]
- Developing Water and Wastewater Projects in Small Communities[55]

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[54] http://www.rcac.org/assets/board-reports/RCAP Getting Your Project to Flow Smoothly.pdf
[55] http://www.rcac.org/assets/files/water-and-waste/usfsmanual.pdf

Appendix 5.2

Public Bidding Process Overview

Why This Tool is Important

Bidding and the awarding of contracts on public projects is regulated by the state of California. This is governed by the Public Contract Code of the California Law. This tool will give agencies information on what GHD believes might be particularly useful information regarding this code. This section should only be used for informative purposes. These are opinions from GHD based solely on our professional experiences. Any issues regarding the Public Contract Code are legal issues and require legal advice and/or representation.

What the Tool Includes

- Information on the Bidding Process
- Local Building Exchanges

How to Use This Tool

Consider these possible issues when the time arises to put the project out to bid. Be sure that you are complying with the entirety of the law not just what has been highlighted in this section. Seek help from consultants or attorneys if necessary.

Additional Resources

- California Public Contract Code[56]
- Construction Contract Administration[57]

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[56] http://leginfo.legislature.ca.gov/faces/codes.xhtml;jsessionid=e4705a70630d4fdf9ed25b241f85?_sm_au_=iVV2HrMMw4JTVWDM

[57] http://onlinemanuals.txdot.gov/txdotmanuals/cah/cah.pdf

Appendix 6.1

Technical, Managerial, and Financial (TMF) Resources

Why This Tool is Important

Most of the time spent in the Utilities Management Cycle is in system operation and management. The tools presented in this section provide information, which could help utilities and small communities alike improve overall system operations. Many of these resources are designed to be used directly by the utility operators, which helps to provide guidance to the agency or tribe without requiring outside resources. Using these tools can also increase the agency or tribe's competitiveness when applying for additional project funding in the future.

What the Tool Includes

The links and worksheets provided in this appendix are contained in the following topic categories. All content in this section is from the Rural Community Assistance Corporation (RCAC)[58]. Updated RCAC modules and resources can be found at http://www.rcac.org/pages/863.

- Module 1: Consolidation Feasibility
- Module 2: System Description
- Module 3: Certified Operators
- Module 4: Source Capacity
- Module 5: Operations Plans
- Module 6: Training
- Module 7: Ownership
- Module 8: Water Rights
- Module 9: Organization
- Module 10: Emergency/Disaster Response Plans
- Module 11: Policies
- Module 12: Budget Projection and Capital Improvement Plans
- Module 13: Budget Control

How to Use This Tool

Within each module are documents, trainings, and spreadsheets all designed to assist with the selected topic. Each module contains a PowerPoint training document, which introduces each topic. Further information on the use of these tools, as well as links to more information, can be found within the contained documentation.

Additional Resources

A consolidated list of additional references for each module topic can be found here:

- RCAC_TMF Resource Summary, 12/13/13

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[58] http://www.rcac.org/home

Appendix 6.2

Regulatory Resources

Why This Tool is Important

Keeping current with federal and state regulatory guidelines helps keep the utility economically and structurally viable, all while providing the best quality service to the utility customer. The references provided in this toolbox cover all major regulatory agencies and are meant to assist in the understanding of regulations affecting the operation of the user specific utility system.

What the Tool Includes

This tool includes links to the following regulatory agencies and their guidelines:

Drinking Water

- USEPA Small Public Water Systems Capacity Development[59]: Website is designed to help small system owners and operators, state and tribal agencies, technical assistance providers, and consumers learn more about helping small water systems provide safe drinking water and protect public health.
- State Water Resources Control Board Division of Drinking Water[60]: Landing Page for California Drinking water Related Laws
    - Drinking Water Related Statutes (PDF)
    - Drinking Water Related Regulations (PDF)
    - Primary Maximum Contaminant Levels (MCLs)[61]
    - Secondary Maximum Contaminant Levels (MCLs)[62]
- Urban Water Management Planning
    - California Urban Water Conservation Council[63]: Website with collected resources for water conservation planning.
    - Department of Water Resources Urban Water Management Planning[64]
- The following link is to the SWRCB Division of Drinking Water upcoming regulations. The information in this resource is designed to help utilities plan for possible future drinking water standards:
    - Upcoming Drinking Water Regulations[65]
    - List of Regulations for Small Water Systems
- Fluoride occurs naturally in water supplies throughout California and elsewhere. When a water system adjusts the level of fluoride to 0.7–1.2 ppm, levels shown to promote oral health by

[59] http://water.epa.gov/type/drink/pws/smallsystems/index.cfm
[60] http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Lawbook.aspx
[61] http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-2-13-2014.pdf
[62] http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Recentlyadoptedregulations/R-21-03-finalregtext.pdf
[63] http://www.cuwcc.org/
[64] http://www.water.ca.gov/urbanwatermanagement/
[65] http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Regulations.aspx

preventing tooth decay, it is referred to as water fluoridation. Today, about two thirds of the U.S. population on public water supplies has access to fluoridated water. CDPH Fluoridation Information[66]

- Sample Boil Water Notification:
    - Boil Water Notice (English)
    - Boil Water Notice (Spanish)
    - Boil Water Notice Cancelation

Wastewater

- North Coast Regional Water Quality Control Board[67]
    - North Coast Basin Plan[68]
- Cal EPA State Water Resources Control Board (SWRCB) General Information Directory[69]
    - SWRCB Laws and Regulations[70]

How to Use This Tool

Using the links provided will help the utility provider familiarize themselves with regulatory standards subject to them. For further information on regulations and requirements for your specific system, contact the local office of the SWRCB Division of Drinking Water, Environmental Protection Agency, or SWRCB Division of Water Quality.

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[66] http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Fluoridation.aspx
[67] http://www.waterboards.ca.gov/northcoast/
[68] http://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/
[69] http://www.swrcb.ca.gov/water_issues/programs/
[70] http://www.swrcb.ca.gov/laws_regulations/

Appendix 6.3

Rate Setting Guidance

Why This Tool is Important

Rate setting is often the most important component to ensure sufficient revenue for the utility system. This revenue is used as the funding source for operating, maintaining, and sometimes updating the water system. The tools presented in this appendix help utility providers set rates which help ensure a financially sustainable utility system going forward.

What the Tool Includes

The tool includes technical guidance for utility rate setting as well as a rate setting calculator. Further information about the rate setting calculator can be found in the financial toolbox instructions.

- Setting Small Drinking Water System Rates for a Sustainable Future (PDF)
- Formulate Great Rates (PDF)
- Rate Setting Calculator 12-6
    - Financial Toolbox Instructions

How to Use This Tool

Many of the rate-setting tools provided are meant to be used directly by the utility. However, proper rate setting should include technical analysis, which may require additional assistance from consultants or government agencies. Further information regarding the use of these tools can be found in this appendix and at the RCAC website[71].

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[71] http://www.rcac.org/pages/216

Appendix 6.4

Capital Improvement Planning Resources

Why This Tool is Important

System infrastructure is the backbone of a small utility. Infrastructure needs to be maintained and upgraded in order to stay current with regulations and standards, as well as provide the best service to the utility customer. The tools in this appendix are designed to familiarize small utility providers with the steps involved in infrastructure upgrades and replacement planning, which is the foundation of Capital Improvement Planning.

What the Tool Includes

This tool includes training, guidance, and calculation tools to help utilities plan and budget for capital improvements going forward:

- Financial Toolbox
  - Financial Toolbox Example
  - Financial Toolbox Instructions
- Budget Projection Worksheet
- Capital Improvement Plan Template
  - Capital Improvement Plan Example
- Capital Improvement Training
- Reserve Fund Calculator

How to Use This Tool

The guidance provided in this appendix is designed to assist small utilities in understanding the process of Capital Improvement Planning. Certain tasks in this process such as infrastructure evaluation, project prioritization, and cost estimation will likely require technical assistance. The user is encouraged to seek assistance in these topics when necessary.

Additional Resources

The following links are additional resources regarding Capitol Improvement Planning:

- Water Board Basics: Keys for Success, Annual Budgets[72]
- Developing Water and Wastewater Projects in Small Communities[73]
- A Guidebook of Financial Tools—Paying for Sustainable Environmental Systems[74]

[72] http://www.rcac.org/assets/files/water_board_basics/WBB-Annual_Budgets.pdf
[73] http://www.rcac.org/assets/files/water-and-waste/usfsmanual.pdf
[74] http://nepis.epa.gov/Exe/ZyNET.exe/P100179D.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2006+Thru+2010&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C06thru10%5CTxt%5C00000004%5CP100179D.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p%7Cf&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

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